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(54) **Stackable bottle crate.**

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Description

The present invention concerns a stackable bottle crate made of plastic, containing a bottom, four side walls standing on it and partitions connected to these which border compartments for bottles, including four corner compartments, whereby the crate is provided with a window in at least two diagonally opposed corners which extends in both side walls converging in the corner and the crate has reinforcement constructions on both sides of such a window linked to these converging side walls which extend from the bottom to nearly the top of the crate.

The windows in the corners offer an increased visibility of the bottles in the corresponding corner compartments, whereas the reinforcement constructions, together with the side walls with which they are linked provide sufficient strength in the upright direction. These reinforcement constructions can border the window itself or can be situated at a small distance from the standing edges of the window.

Since the reinforcement constructions aim to absorb the load of a crate stacked upon it, "nearly the top" means either exactly the top or, in those cases where the top crate rests on the underlying crate with an edge penetrating in the open, top-most end, somewhat beneath it.

Bottle crates of the above mentioned kind are disclosed in DE-U-8.702.930 and in DE-U-8.704.845.

These crates are only provided with reinforcement constructions in the upstanding sidewalls. Columns are formed in these sidewalls, on both sides of the windows.

The strenght in the vertical direction and thus also the stackability of the crates are limited, especially when the surface of the windows is great.

The invention aims to provide a bottle crate providing an increased visibility of its contents without jeopardizing the stackability.

To this aim, the crate does not only have a reinforcement construction on both sides of a window situated in a corner, but it also has a reinforcement construction in the corner of the corresponding corner compartment which is diagonally opposed to the window.

According to a particular embodiment of the invention the windows form openings which extend upward to the topmost edge of the side walls and thus give out onto the upper side of the crate.

Especially in this embodiment, the visibility of the bottles in the corner compartments provided with a window is excellent.

The distance between the standing edges of a window is preferably smaller than the diameter of a circle traced by the corresponding corner compart-

ment.

According to a practical embodiment of the invention the crate has a window in all four corners.

The reinforcement constructions may have different forms.

Thus, according to a first embodiment, the reinforcement constructions have wall parts which form at least one standing hollow column with the side walls with which they are linked.

A hollow column structure provides a very great strength with a minimum of material.

According to another embodiment the two reinforcement constructions contain wall parts on both sides of one and the same window which also form the partitions which border the corner compartment onto which the window gives out; these partitions extend from the bottom to practically the upper side of the crate.

The above-mentioned wall parts which form the partitions which border the corner compartment form one single cylindrically bent standing wall part according to a favourable embodiment which, on both sides of the window, links up with the side walls converging in the corner.

These partitions, in particular this bent wall part, functionally border the above-mentioned hollow columns at least partially together with the side walls.

According to another embodiment of the invention the partitions which border a corner compartment are pointed at right angles to each other as usual, but they extend from the bottom over more than half the height of the crate.

Thus, these partitions are higher than usual and must not only separate the bottles from one another in the crate, but must also provide more strength to the crate in the upward direction.

These partitions functionally link up with the side walls at the height of wall parts which form hollow columns together with the side walls.

Other characteristics and advantages of the invention will become clear from the following description of a stackable bottle crate according to the invention. This description is given by way of example only and without being limitative in any way. The figures refer to the accompanying drawings where:

Figure 1 shows a view in perspective of a stackable bottle crate according to the invention, filled with bottles.

Figure 2 shows a front view of the bottle crate in figure 1;

Figure 3 shows a side view of the bottle crate in the previous figures;

Figure 4 shows a cross-section according to line IV-IV in figure 2;

Figure 5 shows a cross-section according to line V-V in figure 3;

Figure 6 shows the part F6 from figure 2 to a larger scale;

Figure 7 shows a view in perspective analogous to that in figure 1, but in relation to another embodiment of the bottle crate according to the invention;

Figure 8 shows a front view of the bottle crate in figure 7;

Figure 9 shows a side view of the bottle crate in figures 7 and 8;

Figure 10 shows a cross section according to line X-X in figure 8;

Figure 11 shows a cross section according to line XI-XI in figure 9.

The stackable bottle crate of plastic according to the figures 1 to 6 is mainly composed of a rectangular bottom 1 with four rounded angles, two longitudinal standing side walls 2, two cross standing side walls 3 and partitions 4 which divide the crate in six compartments 5 or 6 for a bottle, namely two corner compartments 5 along each cross side wall 3 and the two above-mentioned corner compartments 5 and one middle compartment 6, along each longitudinal side wall 2.

The side walls 2 and 3 and the partitions 4 are at right angles to the bottom 1 and the terms standing, topmost, etc. are given with reference to the bottom 1. This bottom 1 is provided with supporting ribs 7 below in the known manner which fit exactly in the open upper side of an identical crate placed under it, both when stacked in columns or when stacked crosswise, so as to keep the stacked crates from shifting. Between the supporting ribs 7, the bottom 1 has, also in the known manner, recesses 8.

The longitudinal side walls 2 are provided with a window 9 in the middle which gives out onto a middle compartment 6. This window 9 is formed by a longitudinal opening which is pointed at right angles to the bottom 1 with its longitudinal side. The bottommost edge of the window 9 is situated at a distance above the bottom 1 and the topmost edge is situated at a distance from the topmost edge of the side wall 2. The width of the window 9 is smaller than the diameter of a circle traced in the middle compartment 6 and thus is smaller than the diameter of the bottles for which the crate is designed.

A characteristic of the invention is among other things that a window 10 has also been provided in the four corners of the crate. This window 10 follows the bent corner and thus partially extends in a longitudinal side wall 2 and partially in a cross side wall 3. This window 10 forms an opening which extends from a short distance above the bottom 1 to the topmost edge of the crate. The distance between the standing edges of the window 10 is smaller than the diameter of a circle

traced in a corner compartment 5.

Further, the windows 10 in the corners are surrounded on both sides by reinforcement constructions, i.e. wall parts 11 to 15 which rest on the bottom 1 and extend uninterruptedly to or almost to the upper side of the crate. They are solid and thus have no openings. Together with parts of the side walls 2 and 3 with which they are linked, they form standing hollow columns 16, 17 and 18. At the bottom, these hollow columns give out onto opening 8 in the bottom 1, but also at the top these hollow columns are partially open. Thus is avoided that water is left behind in the hollow columns when the crates are washed.

The wall parts 11 are almost cylindrically bent and have a radius which corresponds to the radius of the above-mentioned circle traced in a corner compartment 5 but which slightly increases towards the upper side as represented in detail in figure 6. These wall parts 11 border four corner compartments 5 at the inner side and simultaneously form partitions 4 which border the corner compartments and thus which are not only bent, but which also extend over the full height of the crate.

The two wall parts 11 which border the corner compartments 5 along one and the same cross side wall 3, together with the part of this side wall 3 which is situated between the windows 10 giving out onto these corner compartments 5 and with a narrow, strip-shaped wall part 12 which connects the two wall parts 11 to one another at a distance from the side wall, form a first hollow column 16 which is thus situated in the middle of a cross side wall 3, between two corner compartments 5.

Between each of the corner compartments 5 and the middle compartment 6, along a longitudinal side wall 2, a hollow column 17 is formed. This hollow column 17 is bordered by a part of the bent wall part 11 which borders the corner compartment 5 on the inside, a bent wall part 13 which forms a part linked up with the side wall 2 of one of the partitions 4 which border the middle compartment 6, a part of the side wall 2 situated between the wall parts 11 and 13, and a narrow, strip-shaped connecting wall part 14 situated at a distance from the latter which connects the wall parts 11 and 13 to one another. The wall part 13 is practically bent according to a cylinder part having the same radius as the wall parts 11, which is also the radius of a circle traced in a middle compartment 6. Also the radius of the wall part 13 can slightly increase towards the top on the upper side. This wall part 13 only traces almost one quarter of a cylinder and goes over in a connecting wall part 15 at the height of the connecting wall part 14 which connects the two wall parts 13 of two opposed columns 17 in the crate. By means of this connecting wall part 15, the

connecting wall parts 14 of the two opposed columns 17 and parts of the two bent wall parts 11 which border the corner compartments 5 situated next to them, a hollow column 18 is formed.

The reinforcement construction which is normally situated in each corner in crates, but which cannot be present in the here described crate because of the windows 10, is hence replaced by three columns, namely the two columns 16 and 17 on both sides of the window 10 and the above-mentioned column 18 inside the crate, diagonally opposed to the window 10 where the partitions 4 which border the corner compartment 5 meet.

The partitions 4 which border a middle compartment 6 contain, apart from two wall parts 13 which extend over the full height of the crate, partition parts 19 which are clearly less high.

In the middle, between the topmost ends of the two connecting wall parts 15 in the crate, a handle 20 is formed.

The embodiment of the bottle crate according to figures 7 to 11, as opposed to the crate described above, is designed for twelve bottles and thus contains twelve compartments 5 and 6. Along a cross side wall 3 there are two corner compartments 5 and one middle compartment 6, whereas along the longitudinal side walls 2 there are two corner compartments 5 and two intermediate compartments 6 and inside also two compartments 6. There is no central handle 20.

The corner compartments 5 are provided with a window 10 giving out on the upper edge of the crate in the same manner as described above which is bordered on both sides by a column 16 or 17 which extends from the bottom 1 to the top of the crate. However, there is an extra column 16 along the cross side wall 3 since the two corner compartments 5 along this side wall 3 are not nearby.

Also the middle compartment 6 along this side wall 3 has been provided with a window 21 between the columns 16 which does not give out onto the upper edge of the crate however. The part of the side wall 3 which is situated above the window 21 which widens somewhat at the top forms a handle. This part contains a wall part 22 which is situated more inwardly and on the outside of which bent ribs 23 have been provided as well as an outwardly pointed edge 24 at the top. As the window 21 widens at the top, the two columns 16 situated on both sides have a somewhat smaller diameter at the top than at the bottom.

In an analogous manner, a window 25 has also been provided between the two columns 17 along each side wall 2 and the part of the side wall 2 situated above the window 25 forms a handle strip. This part contains a wall part 26 which is situated slightly more inwardly than the rest of the side wall.

On the outside of this wall part 26 there are bent ribs 23 and at the top also an edge 24 pointed towards the outside. Notches 27 have been provided in the edges 24 in which supporting ribs 7 provided in the bottom 1 of a crate placed on top fit when stacking crosswise.

The bottommost edge of the windows 21 as well as of the windows 25 is formed by an inwardly bent edge 28.

The columns 16 along the side walls 3 and the columns 17 along the side walls 2 are, in the same manner as in the first embodiment according to figures 1 to 6, formed by a part of the corresponding side wall 2 or 3, a wall part 11 which is part of the border of the neighbouring corner compartment 5 and a wall part 13 which is part of the border of the neighbouring compartment 6.

As opposed to the above-mentioned first embodiment the wall parts 11 of a corner compartment do not cylindrically extend between a side wall 2 and a side wall 3 and thus they do not form the entire partition 4 which borders this corner compartment on the inside; however, these wall parts 11 only border the columns 16 and 17. A flat partition part 29 links up with each column 16 and 17, whereby two cross partitions parts 29 which border one and the same corner compartment 5, and with a column 16 on one side of the window 10 in this compartment 5 and a column 17 on the other side of the window 10 respectively, link up with a common round hollow column 30 which extends from the bottom 1 to the top of the crate.

Also in this embodiment, the reinforcement construction which is normally provided in the corner of the crate has been replaced by three columns, namely the columns 16 and 17 on both sides of the window 10 in the corner and the column 30 which is diagonally opposed to the window in the corner of the corner compartment 5.

Also between the two columns 30 which are thus situated between two opposed columns 17, there is such a partition part 29.

As is particularly clear in figure 11, these partition parts 29 are apparently higher than the normal partitions 4 which do not contain such a partition part 29. At the top, the partition parts have been cut in a V-shape and the middlemost lowest point is situated at almost 3/4 of the height of the crate.

The partitions 4 which border compartments 6 situated inside and which link up with a column 30 have a part 31 sloping upwards against this column.

The columns 16, 17 and 30, reinforced by partition parts 29 and parts 31, form among others on both sides of the windows 10 reinforcement constructions which compensate for the weakening caused by the windows 10 in the corners of the crate and which make it possible to stack the

crates, both in columns and crosswise.

The crates described above offer a striking and nice view. Because the corners are provided with a window 10 giving out onto the upper side, the bottles in the corner compartments 5 are very well visible. From any position whatsoever, it is possible to see what bottles are contained in the crate. Nevertheless, the crates are sufficiently strong in the upward direction to be stacked, both in columns and crosswise. The hollow columns which normally would have been provided in the corners have been provided elsewhere, namely along the corner compartments 5. On top of this, hollow columns 17 have been formed in the longitudinal side walls 2 at distances in the longitudinal direction which correspond with the width of the crate, such that also when stacking crosswise the hollow columns are sufficiently strong.

All these reinforcement constructions are entirely situated inside the crate. No reinforcement constructions have been provided on the outside, which is usually the case in the known crates.

The side walls 2 and 3 may be locally provided on their outside with ribs or protruding parts, for example along their bottommost edge and at the top. Ribs may for example follow the bottommost edges of the windows and possibly extend over the parts of the side walls situated between the windows.

The present invention is in no way limited to the embodiments described above; on the contrary, many modifications can be made to this embodiment, among others as far as form, composition, arrangement and the number of parts used for the realization of the invention are concerned, while still remaining within the scope of the invention as defined by the claims.

Claims

1. Stackable bottle crate made of plastic, containing a bottom (1), four side walls (2 and 3) standing on it and partitions (4) connected to these which border compartments (5 and 6) for bottles, including four corner compartments (5), whereby the crate is provided with a window (10) in at least two diagonally opposed corners which extends in both side walls (2 and 3) converging in the corner and the crate has reinforcement constructions (11 to 15 or 11, 13, 29, 30) on both sides of such a window (10) linked to these converging side walls (2 and 3) which extend from the bottom (1) to nearly the top of the crate. characterized in that it does not only have a reinforcement construction (11, 12, 14 and 11, 13, 14 or 11, 13) on both sides of a window (10) situated in a corner, but in that it also has a reinforcement

construction (11, 14, 15 or 30) in the corner of the corresponding corner compartment which is diagonally opposed to the window (10).

2. Stackable bottle crate according to the above claim, characterized in that the windows (10) form openings which extend upward to the topmost edge of the side walls (2 and 3) and thus give out onto the upper side of the crate.
3. Stackable bottle crate according to any of the above claims, characterized in that the distance between the upward edges of a window (10) is smaller than the diameter of a circle traced by the corresponding corner compartment (5).
4. Stackable bottle crate according to any of the above claims, characterized in that it is provided with a window (10) in all four corners.
5. Stackable bottle crate according to any of the above claims, characterized in that the reinforcement constructions (11 to 15 or 11, 13, 29, 30) have wall parts (11, 12 or 11, 13, 14 or 11, 13) which form at least one upward hollow column (16, 17) together with the side walls (2 or 3) with which they are linked.
6. Stackable bottle crate according to any of the above claims, characterized in that the two reinforcement constructions (11) on both sides of one and the same window (10) simultaneously form at least part of the partitions (4) which border the corner compartment (5) onto which the window (10) gives out, whereby these partitions (4) extend from the bottom (1) to practically the upper side of the crate.
7. Stackable bottle crate according to claims 5 and 6, characterized in that the wall parts (11) forming the partitions (4) which border a corner compartment (5) form one single, almost cylindrically bent standing wall part (11) which, on both sides of the window (10), links up with the side walls (2 and 3) converging in the corner.
8. Stackable bottle crate according to claim 5 and any of claims 6 and 7, characterized in that the partitions (4) which are formed by reinforcement constructions and a corner compartment (5) onto which a window (10) gives out, together with the side walls (2 and 3) border the hollow columns (16 and 17) at least partly on both sides of the window (10).
9. Stackable bottle crate according to any of the above claims, characterized in that along at

- least two opposite side walls (2), it has at least one intermediate compartment (6) apart from two corner compartments (5) and in that a part of a partition (4), between a corner compartment (5) and an intermediate compartment (6), forms a wall part (13) which is part of the reinforcement construction (11, 14, 13 or 11, 13) on a side of the window (10) which gives out onto the corner compartment (5).
10. Stackable bottle crate according to claims 8 and 9, characterized in that the wall part (13) which is part of a partition (4) between a corner compartment (5) and an intermediate compartment (6) also partly borders the hollow column (17) next to the window (10) which gives out onto this corner compartment (5).
11. Stackable bottle crate according to claims 8 and 10, characterized in that the hollow columns (16 and 17) are bordered on the inside by strip-shaped connecting wall parts (14) which connect the wall parts (11 and 13) which are part of a partition (4) which borders the corner compartment (5) and of a partition (4) respectively which partly borders an intermediate compartment.
12. Stackable bottle crate according to any of claims 9 to 11, characterized in that along two opposite side walls (3) are situated only two corner compartments (5) and in that the wall parts (13) which are part of the partitions (4) are connected to one another between each of these corner compartments (5) and a neighbouring intermediate compartment (6) along another side wall (2) by means of a connecting wall part (15) which extends from the bottom (1) to nearly the top of the crate.
13. Stackable bottle crate according to claim 12, characterized in that the connecting wall part (15) borders a column (18) situated inside which, where the three partitions (4) meet which separate two neighbouring corner compartments (5) from one another and from neighbouring intermediate compartments (6) and which border columns (16 and 17) on both sides of the windows (10) in the corners of the corner compartments.
14. Stackable bottle crate according to any of claims 12 and 13, characterized in that it contains two rows of three compartments (5 and 6) and thus two connecting wall parts (15), and in that a handle (20) has been applied between the upper sides of these connecting wall parts (15).
15. Stackable bottle crate according to any of claims 13 and 14, characterized in that a handle (20) has been provided between two columns (18) situated inside.
16. Stackable bottle crate according to any of the above claims, characterized in that along two opposite side walls (2), apart from two corner compartments (5) it contains at least an intermediate compartment (6) and in that in these side walls (2), opposite to this intermediate compartment (6), also a window (9) has been provided, whereby this window (9) extends from a distance from the bottom (1) to a distance from the topmost edge of the side wall (2).
17. Stackable crate according to any of the above claims, characterized in that each of the reinforcement constructions (11, 13, 29, 30) on both sides of a window (10) of a corner compartment (5) also forms a part of a partition (4) which borders the corner compartment (5) and contains a partition part (29) which extends from the bottom (1) over at least half the height of the crate.
18. Stackable crate according to claims 5 and 17, characterized in that it has a column (16, 17) on both sides of a window (10) of a corner compartment (5), in that the partitions (4) of this corner compartment (5) are at right angles and each contain a partition part (29) which on the one hand links up with a column (16 or 17) and on the other hand with one and the same column (30) situated between the partition parts (29) which extends from the bottom (1) to the top of the crate.
19. Stackable crate according to any of the above claims, characterized in that it contains two corner compartments (5) along the cross standing side walls (3) and an intermediate compartment (6) and in that a partition part (29) has been provided between the two columns (30) with which the partition parts (29) of these corner compartments (5) link up which extends over at least half the height of the crate.
20. Stackable crate according to claims 18 and 19, characterized in that both in the cross side walls (3) and in the longitudinal side walls (2) a window (9 or 21) has been provided on top of which is situated a handle strip which contains a wall part (22 or 26) which is situated more inwardly than the outside of the columns (16 or 17) which are situated in the same side wall

next to a window (10) of a corner compartment (5), ribs (23) standing on the outside of this wall part (22 or 26) and a protruding top edge (24).

Patentansprüche

1. Stapelfähiger Flaschenkasten aus Kunststoff, umfassend einen Boden (1), vier darauf stehende Seitenwände (2 und 3) und damit verbundene Trennwände (4), die Fächer (5 und 6) für Flaschen begrenzen, einschließlich vier Eckfächern (5), wobei der Kasten mit einem Fenster (10) in zumindest zwei einander diagonal gegenüberliegenden Ecken versehen ist, das sich in beide Seitenwände (2 und 3) erstreckt, welche in der Ecke konvergieren, und der Kasten Verstärkungsstrukturen (11 bis 15 oder 11, 13, 29, 30) an beiden Seiten eines solchen Fensters (10) aufweist, die mit diesen konvergierenden Seitenwänden (2 und 3) verbunden sind, die sich vom Boden (1) bis nahezu an die Oberkante des Kastens erstrecken, dadurch gekennzeichnet, daß er nicht nur eine Verstärkungsstruktur (11, 12, 14 und 11, 13, 14 oder 11, 13) an beiden Seiten eines in einer Ecke angeordneten Fensters (10) aufweist, sondern daß er auch eine Verstärkungsstruktur (11, 14, 15 oder 30) in der Ecke des entsprechenden Eckfachs hat, das dem Fenster (10) diagonal entgegengesetzt ist.
2. Stapelfähiger Flaschenkasten gemäß dem vorgenannten Anspruch, dadurch gekennzeichnet, daß die Fenster (10) Öffnungen bilden, die sich nach oben zur obersten Kante der Seitenwände (2 und 3) erstrecken und somit bis zur Oberseite des Kastens reichen.
3. Stapelfähiger Flaschenkasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß der Abstand zwischen den Oberkanten eines Fensters (10) kleiner ist als der Durchmesser eines von dem entsprechenden Eckfach (5) beschriebenen Kreises.
4. Stapelfähiger Flaschenkasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß er in allen vier Ecken mit einem Fenster (10) versehen ist.
5. Stapelfähiger Flaschenkasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß die Verstärkungsstrukturen (11 bis 15 oder 11, 13, 29, 30) Wandteile (11, 12 oder 11, 13, 14 oder 11, 13) aufweisen, die zumindest eine aufrechte hohle Säule (16, 17) gemeinsam mit den Seitenwänden (2 oder 3),

mit denen sie verbunden sind, bilden.

6. Stapelfähiger Flaschenkasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß die zwei Verstärkungsstrukturen (11) an beiden Seiten ein und desselben Fensters (10) gleichzeitig zumindest einen Teil der Trennwände (4) bilden, die an das Eckfach (5) grenzen, auf welches das Fenster (10) mündet, wobei diese Trennwände (4) sich vom Boden (1) bis praktisch zur Oberseite des Kastens erstrecken.
7. Stapelfähiger Flaschenkasten gemäß den Ansprüchen 5 und 6, dadurch gekennzeichnet, daß die Wandteile (11), die die Trennwände (4) bilden, welche an ein Eckfach (5) grenzen, ein einziges, nahezu zylindrisch gebogenes stehendes wandteil (11) bilden, das, an beiden Seiten des Fensters (10), mit den in der Ecke konvergierenden Seitenwänden (2 und 3) verbunden ist.
8. Stapelfähiger Flaschenkasten gemäß Anspruch 5 und irgendeinem der Ansprüche 6 und 7, dadurch gekennzeichnet, daß die Trennwände (4), die durch Verstärkungsstrukturen gebildet werden, und ein Eckfach (5), in das ein Fenster (10) mündet, gemeinsam mit den Seitenwänden (2 und 3) zumindest teilweise die hohlen Säulen (16 und 17) an beiden Seiten des Fensters begrenzen.
9. Stapelfähiger Flaschenkasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß er, entlang zumindest zweier einander gegenüberliegender Seitenwände (2), außer zwei Eckfächern (5) zumindest ein Zwischenfach (6) aufweist und daß ein Teil einer Trennwand (4), zwischen einem Eckfach (5) und einem Zwischenfach (6), ein Wandteil (13) bildet, das Teil der Verstärkungsstruktur (11, 14, 13 oder 11, 13) an einer Seite des Fensters (10), das in das Eckfach (5) mündet, ist.
10. Stapelfähiger Flaschenkasten gemäß den Ansprüchen 8 und 9, dadurch gekennzeichnet, daß das Wandteil (13), das Teil einer Trennwand (4) zwischen einem Eckfach (5) und einem Zwischenfach (6) ist, auch teilweise die hohle Säule (17) neben dem Fenster (10), das in dieses Eckfach (5) mündet, begrenzt.
11. Stapelfähiger Flaschenkasten gemäß den Ansprüchen 8 und 10, dadurch gekennzeichnet, daß die hohlen Säulen (16 und 17) an der Innenseite durch leistenförmige Verbindungs-

- wandteile (14) begrenzt werden, die die Wandteile (11 und 13), die Teil einer Trennwand (4) sind, welche an das Eckfach (5) grenzt, beziehungsweise einer Trennwand (4), die teilweise an ein Zwischenfach grenzt, verbinden. 5
12. Stapelfähiger Flaschenkasten gemäß einem der Ansprüche 9 bis 11, dadurch gekennzeichnet, daß entlang zwei einander gegenüberliegenden Seitenwänden (3) nur zwei Eckfächer (5) angeordnet sind und daß die Wandteile (13), die Teil der Trennwände (4) sind, zwischen jedem dieser Eckfächer (5) und einem benachbarten Zwischenfach (6) entlang einer anderen Seitenwand (2) mittels eines Verbindungswandteils (15), das sich vom Boden (1) bis nahezu an die Oberkante des Kastens erstreckt, miteinander verbunden sind. 10
13. Stapelfähiger Flaschenkasten gemäß Anspruch 12, dadurch gekennzeichnet, daß das Verbindungswandteil (15) eine innerhalb angeordnete Säule (18) begrenzt, wo die drei Trennwände (4) sich treffen, die zwei benachbarte Eckfächer (5) voneinander und von benachbarten Zwischenfächern (6) trennen und die Säulen (16 und 17) an beiden Seiten der Fenster (10) in den Ecken der Eckfächer begrenzen. 15
14. Stapelfähiger Flaschenkasten gemäß einem der Ansprüche 12 und 13, dadurch gekennzeichnet, daß er zwei Reihen von drei Fächern (5 und 6) und somit zwei Verbindungswandteile (15) umfaßt, und daß ein Handgriff (20) zwischen den Oberseiten dieser Verbindungswandteile (15) angebracht worden ist. 20
15. Stapelfähiger Flaschenkasten gemäß einem der Ansprüche 13 und 14, dadurch gekennzeichnet, daß ein Handgriff (20) zwischen zwei innerhalb angeordneten Säulen (18) vorgesehen wurde. 25
16. Stapelfähiger Flaschenkasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß er, entlang zweier einander gegenüberliegender Seitenwände (2), außer zwei Eckfächern (5) zumindest ein Zwischenfach (6) umfaßt und daß in diesen Seitenwänden (2), die diesem Zwischenfach (6) gegenüberliegen, auch ein Fenster (9) angebracht wurde, wobei dieses Fenster (9) sich von einem Abstand vom Boden (1) bis zu einem Abstand zur obersten Kante der Seitenwand (2) erstreckt. 30
17. Stapelfähiger Kasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß jede der Verstärkungsstrukturen (11, 35

13, 29, 30) an beiden Seiten eines Fensters (10) eines Eckfachs (5) auch Teil einer Trennwand (4) bildet, die an das Eckfach (5) grenzt und einen Trennwandteil (29) umfaßt, der sich vom Boden (1) über zumindest die halbe Höhe des Kastens erstreckt.

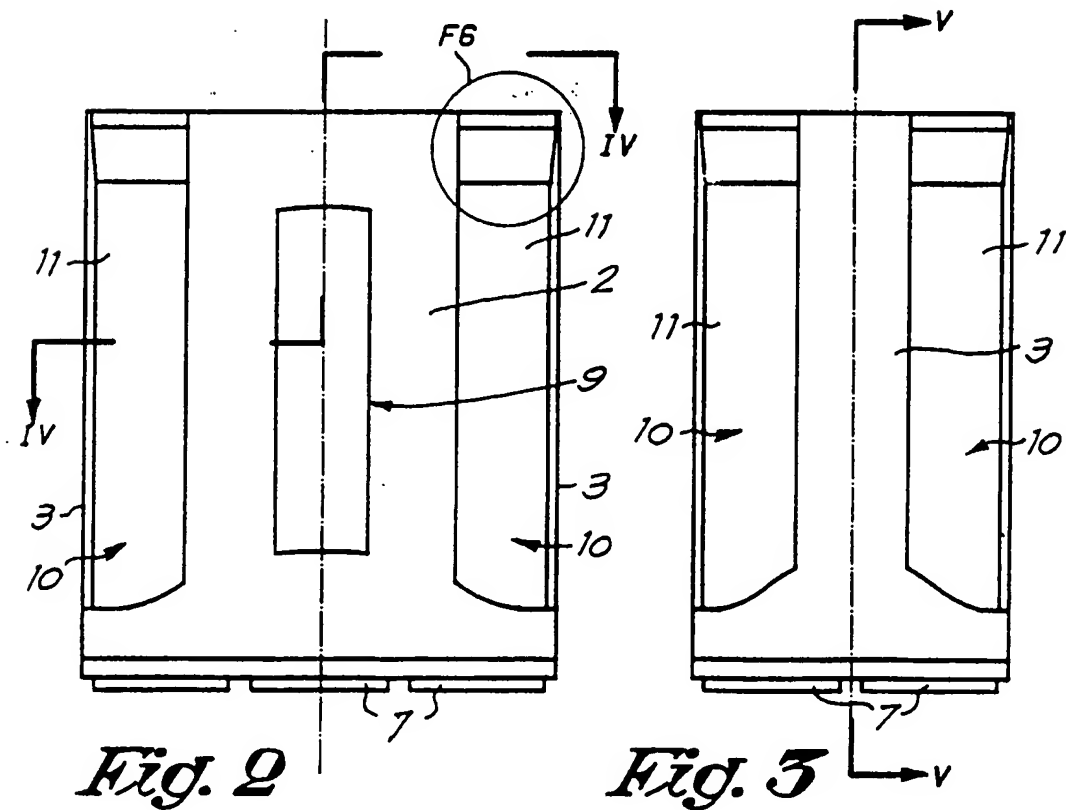
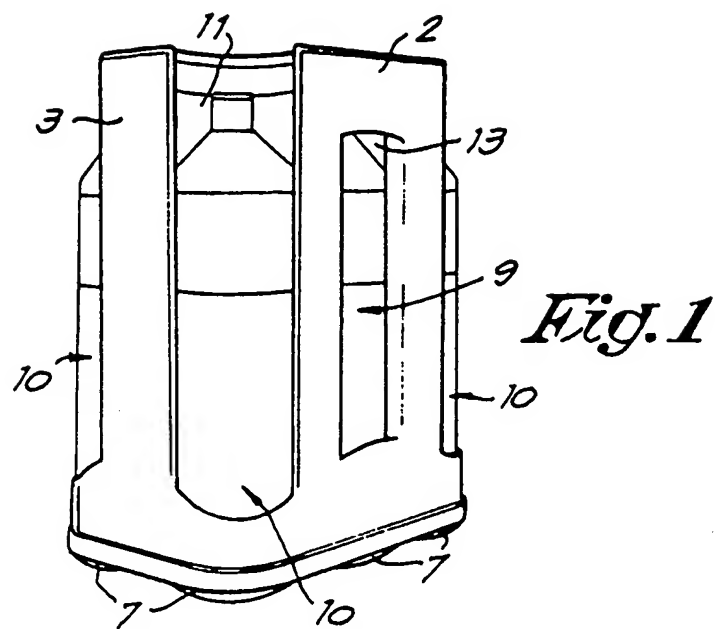
18. Stapelfähiger Kasten gemäß den Ansprüchen 5 und 17, dadurch gekennzeichnet, daß er eine Säule (16, 17) an beiden Seiten eines Fensters (10) eines Eckfachs (5) hat, daß die Trennwände (4) dieses Eckfachs (5) rechtwinklig sind und jede ein Trennwandteil (29) umfaßt, das einerseits mit einer Säule (16 oder 17) und andererseits mit ein und derselben, sich vom Boden (1) bis zur Oberkante des Kastens erstreckenden Säule (30), die zwischen den Trennwandteilen (29) angeordnet ist, verbunden ist. 40
19. Stapelfähiger Kasten gemäß einem der vorgenannten Ansprüche, dadurch gekennzeichnet, daß er zwei Eckfächer (5) entlang den quergeordneten Seitenwänden (3) und ein Zwischenfach (6) umfaßt und daß ein Trennwandteil (29) zwischen den beiden Säulen (30), mit denen die Trennwandteile (29) dieser Eckfächer (5) verbunden sind, angebracht wurde, das sich über zumindest die halbe Höhe des Kastens erstreckt. 45
20. Stapelfähiger Kasten gemäß Ansprüchen 18 und 19, dadurch gekennzeichnet, daß sowohl in den quergeordneten Seitenwänden (3) als auch in den längsgerichteten Seitenwänden (2) ein Fenster (9 oder 21) angebracht wurde, über dem eine Griffleiste angeordnet ist, die ein Wandteil (22 oder 26), das mehr nach innen angeordnet ist als die Außenseite der Säulen (16 oder 17), die in derselben Seitenwand neben einem Fenster (10) eines Eckfachs (5) angeordnet sind, Rippen (23), die auf der Außenseite dieses Wandteils (22 oder 26) stehen, und eine vorspringende Oberkante (24) umfaßt. 50

Revendications

1. Casier à bouteilles empilable réalisé en plastique, contenant un fond (1), quatre parois latérales (2 et 3) dressées sur ce dernier, ainsi que des parois de séparation (4) reliées à ces dernières, qui délimitent des compartiments (5 et 6) destinés à des bouteilles, englobant quatre compartiments de coin (5), par lequel le casier est muni d'une fenêtre (10) dans au moins deux coins diagonalement opposés, qui s'étend dans les deux parois latérales (2 et 3) 55

- convergeant dans le coin, et le casier possède des structures de renforcement (11 à 15 ou 11, 13, 29, 30) de part et d'autre d'une telle fenêtre (10), reliées à ces parois latérales convergentes (2 et 3), qui s'étendent depuis le fond (1) jusqu'à approximativement le sommet du casier, caractérisé en ce qu'il possède non seulement une structure de renforcement (11, 12, 14 et 11, 13, 14 ou 11, 13) de part et d'autre d'une fenêtre (10) située dans un coin, mais en ce qu'il possède également une structure de renforcement (11, 14, 15 ou 30) dans le coin du compartiment de coin correspondant qui est diagonalement opposé à la fenêtre (10).
2. Casier à bouteilles empilable selon la revendication ci-dessus, caractérisé en ce que les fenêtres (10) forment des ouvertures qui s'étendent vers le haut jusqu'aux bords supérieurs des parois latérales (2 et 3), en donnant ainsi sur le côté supérieur du casier.
 3. Casier à bouteilles empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce que la distance entre les bords supérieurs d'une fenêtre (10) est inférieure au diamètre d'un cercle tracé par le compartiment de coin correspondant (5).
 4. Casier à bouteilles empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce qu'il est muni d'une fenêtre (10) dans les quatre coins.
 5. Casier à bouteilles empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce que les structures de renforcement (11 à 15 ou 11, 13, 29, 30) possèdent des sections de parois (11, 12 ou 11, 13, 14 ou 11, 13) qui forment au moins une colonne creuse verticale (16, 17), conjointement avec les parois latérales (2 ou 3), à laquelle elles sont reliées.
 6. Casier à bouteilles empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce que les deux structures de renforcement (11) de part et d'autre d'une seule et même fenêtre (10) forment simultanément au moins une section des parois de séparation (4) qui délimitent le compartiment de coin (5) sur lequel donne la fenêtre (10), par lequel ces parois de séparation (4) s'étendent depuis le fond (1) jusqu'à pratiquement le côté supérieur du casier.
 7. Casier à bouteilles empilable selon les revendications 5 et 6, caractérisé en ce que les sections de parois (11) formant les parois de séparation (4) qui délimitent un compartiment de coin (5) forment une section de paroi unique (11) dressée en étant courbée de manière pratiquement cylindrique, qui, de part et d'autre de la fenêtre (10), est reliée aux parois latérales (2 et 3) convergeant dans le coin.
 8. Casier à bouteilles empilable selon la revendication 5 et selon l'une quelconque des revendications 6 et 7, caractérisé en ce que les parois de séparation (4) sont formées par des structures de renforcement et un compartiment de coin (5) sur lequel donne une fenêtre (10), conjointement avec les parois latérales (2 et 3), délimitent les colonnes creuses (16 et 17) au moins partiellement de part et d'autre de la fenêtre (10).
 9. Casier à bouteilles empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce que, le long d'au moins deux parois latérales opposées (2), il possède au moins un compartiment intermédiaire (6) séparé de deux compartiments de coin (5) et en ce qu'une section d'une paroi de séparation (4), entre un compartiment de coin (5) et un compartiment intermédiaire (6), forme une section de paroi (13) qui fait partie de la structure de renforcement (11, 14, 13 ou 11, 13) d'un côté de la fenêtre (10) qui donne sur le compartiment de coin (5).
 10. Casier à bouteilles empilable selon les revendications 8 et 9, caractérisé en ce que la section de paroi (13) qui fait partie d'une paroi de séparation (4) entre un compartiment de coin (5) et un compartiment intermédiaire (6) délimite également partiellement la colonne creuse (17) à côté de la fenêtre (10) qui donne sur ce compartiment de coin (5).
 11. Casier à bouteilles empilable selon les revendications 8 et 10, caractérisé en ce que les colonnes creuses (16 et 17) sont délimitées à l'intérieur par des sections de parois (14) procurant une liaison en forme de bande, qui relient les sections de parois (11 et 13) qui font partie d'une paroi de séparation (4) qui délimite le compartiment de coin (5) et d'une paroi de séparation (4), respectivement, qui délimite partiellement un compartiment intermédiaire.
 12. Casier à bouteilles empilable selon l'une quelconque des revendications 9 à 11, caractérisé en ce que, le long de deux parois latérales

- opposées (3), sont situés seulement deux compartiments de coin (5) et en ce que les sections de parois (13) qui font partie des parois de séparation (4) sont reliées l'une à l'autre entre chacun de ces compartiments de coin (5) et un compartiment intermédiaire voisin (6) le long de l'autre paroi latérale (2) au moyen d'une section de paroi (15) procurant une liaison, qui s'étend depuis le fond (1) jusqu'à approximativement le sommet du casier.
13. Casier à bouteilles empilable selon la revendication 12, caractérisé en ce que la section de paroi (15) procurant une liaison délimite une colonne (18) située à l'intérieur, qui, là où les trois parois de séparation (4) se rencontrent, sépare deux compartiments de coin voisins (5) l'un par rapport à l'autre et par rapport aux compartiments intermédiaires voisins (6), et qui délimite les colonnes (16 et 17) de part et d'autre des fenêtres (10) dans le coin des compartiments de coin.
14. Casier à bouteilles empilable selon l'une quelconque des revendications 12 et 13, caractérisé en ce qu'il contient deux rangées de trois compartiments (5 et 6) et ainsi deux sections de parois (15) procurant une liaison, et en ce qu'une poignée (20) a été appliquée entre les côtés supérieurs de ces sections de parois (15) procurant une liaison.
15. Casier à bouteilles empilable selon l'une quelconque des revendications 13 et 14, caractérisé en ce qu'une poignée (20) a été prévue entre deux colonnes (18) situées à l'intérieur.
16. Casier à bouteilles empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce que, le long de deux parois latérales opposées (2), sans compter deux compartiments de coin (5), il contient au moins un compartiment intermédiaire (6), et en ce que, dans ces parois latérales (2) opposées à ce compartiment intermédiaire (6), on prévoit également une fenêtre (9), par lequel cette fenêtre (9) s'étend depuis une distance à partir du fond (1) jusqu'à une distance à partir du bord supérieur de la paroi latérale (2).
17. Casier empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce que chacune des structures de renforcement (11, 13, 29, 30) de part et d'autre d'une fenêtre (10) d'un compartiment de coin (5) forme également une section de paroi de séparation (4) qui délimite le compartiment de coin (5) et contient une section (29) de paroi de séparation, qui s'étend depuis le fond (1) sur au moins la moitié de la hauteur du casier.
18. Casier empilable selon les revendications 5 et 17, caractérisé en ce qu'il possède une colonne (16, 17) de part et d'autre d'une fenêtre (10) d'un compartiment de coin (5), en ce que les parois de séparation (4) de ce compartiment de coin (5) forment des angles droits et contiennent chacune une section (29) de paroi de séparation qui, d'une part, est reliée à une colonne (16 ou 17) et, d'autre part, à une seule et même colonne (30) située entre les sections (29) de parois de séparation, qui s'étend depuis le fond (1) jusqu'au sommet du casier.
19. Casier empilable selon l'une quelconque des revendications ci-dessus, caractérisé en ce qu'il contient deux compartiments de coin (5) le long des parois latérales transversales (3) et un compartiment intermédiaire (6), et en ce qu'une section (29) de paroi de séparation a été prévue entre les deux colonnes (30) auxquelles sont reliées les sections (29) de parois de séparation de ces compartiments de coin (5), qui s'étend sur au moins la moitié de la hauteur du casier.
20. Casier empilable selon les revendications 17 et 19, caractérisé en ce que, à la fois dans les parois latérales transversales (3) et dans les parois latérales longitudinales (2), on prévoit une fenêtre (9 ou 21) au sommet de laquelle est située une bande faisant office de poignée, qui contient une section de paroi (22 ou 26) qui est située plus à l'intérieur qu'à l'extérieur des colonnes (16 ou 17) qui sont situées dans la même paroi latérale à côté d'une fenêtre (10) d'un compartiment de coin (5), des nervures (23) dressées à l'extérieur de cette section de paroi (22 ou 26), ainsi qu'un bord supérieur (24) faisant saillie.



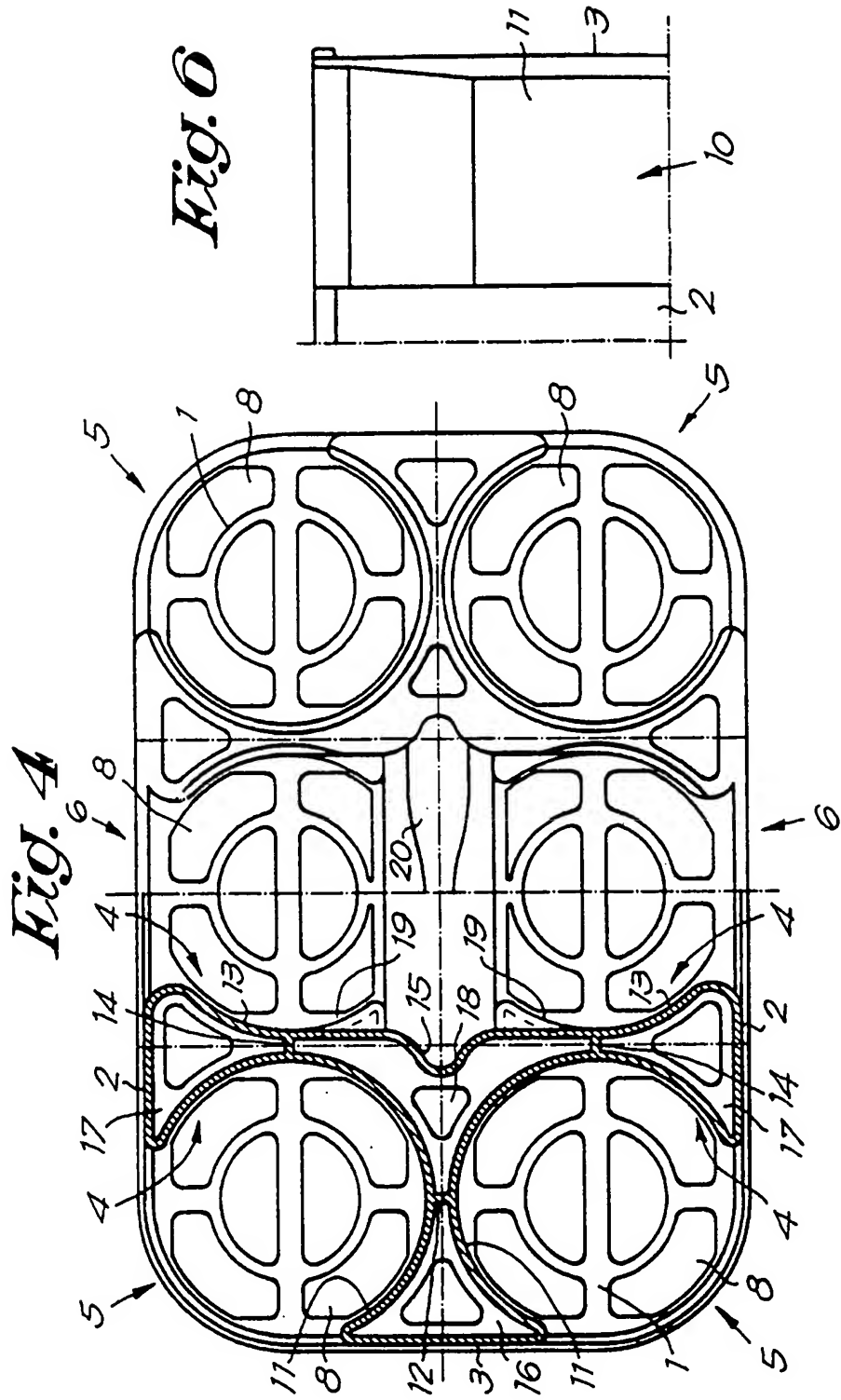
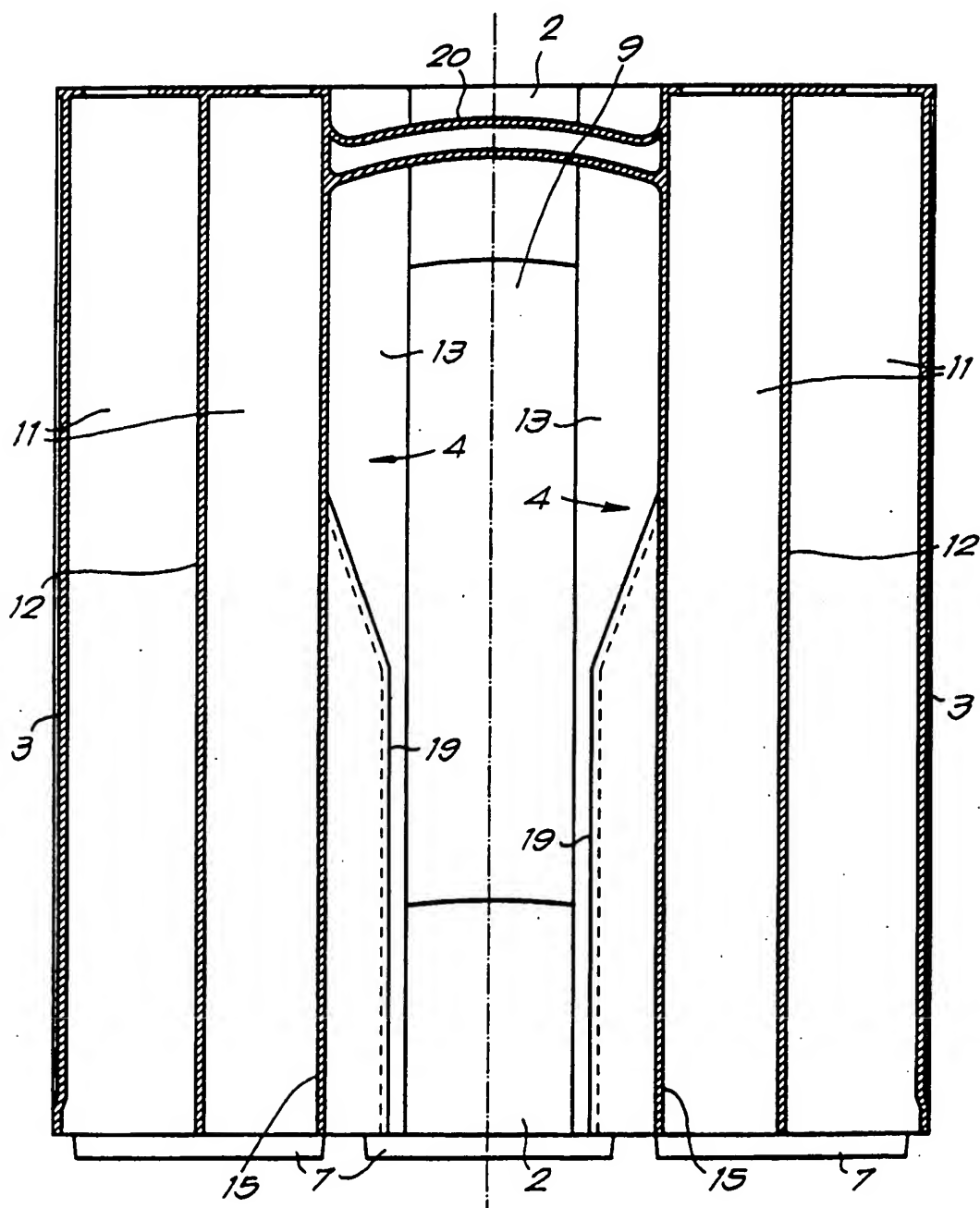


Fig. 5



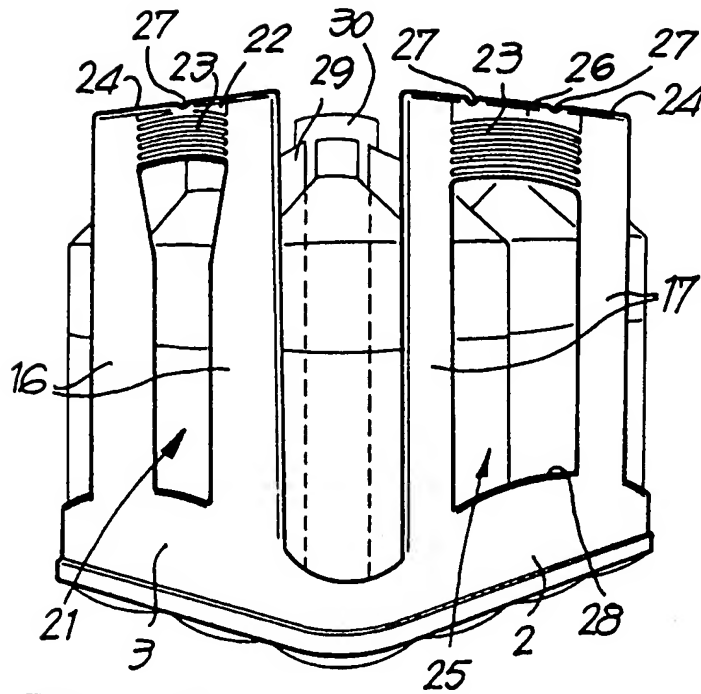


Fig. 7

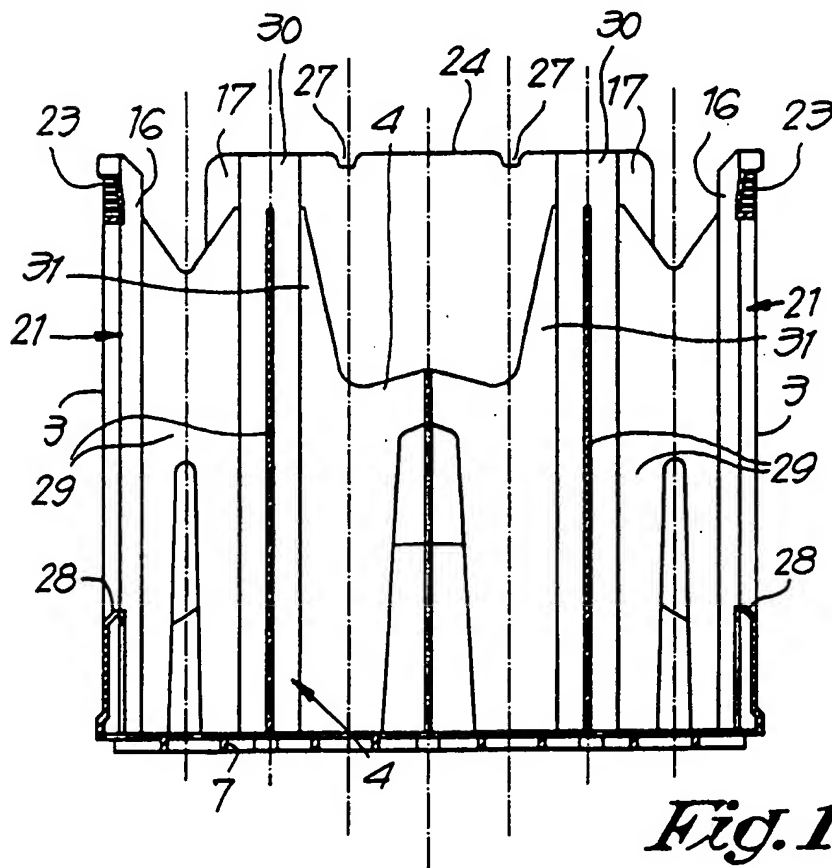


Fig. 11

Fig. 8

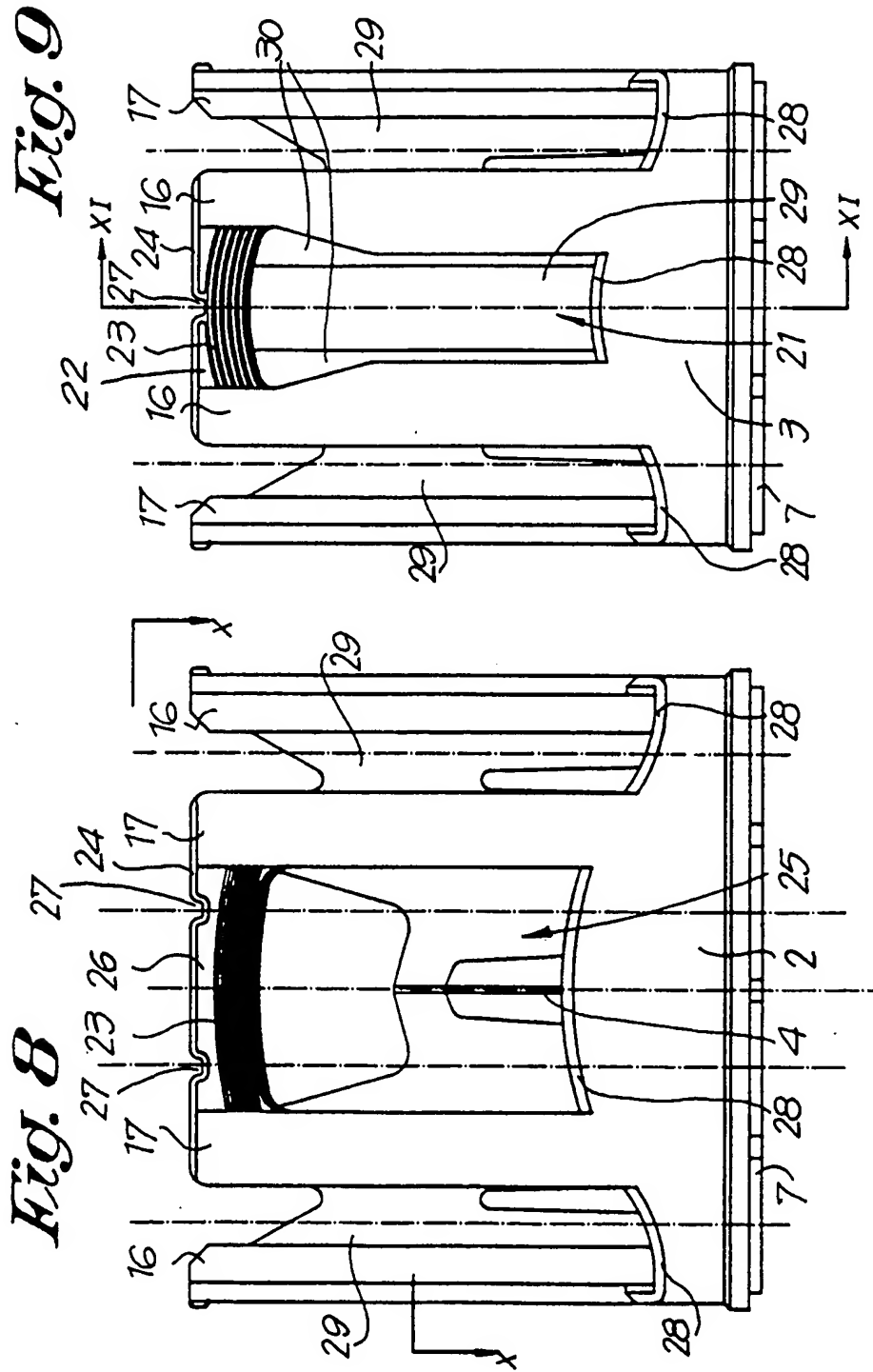
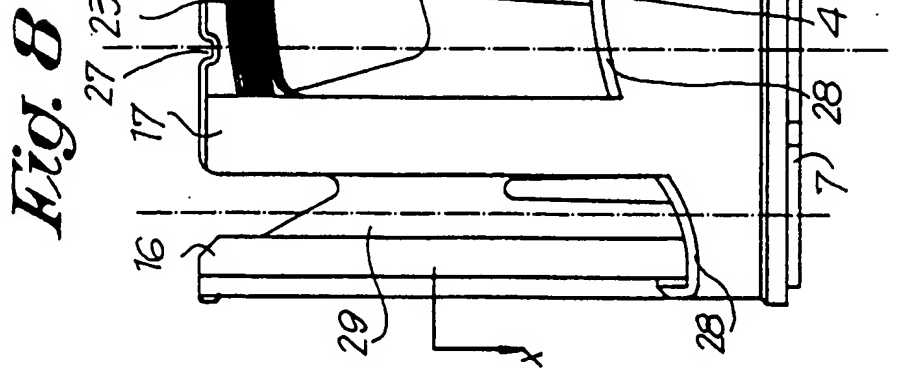


Fig. 9



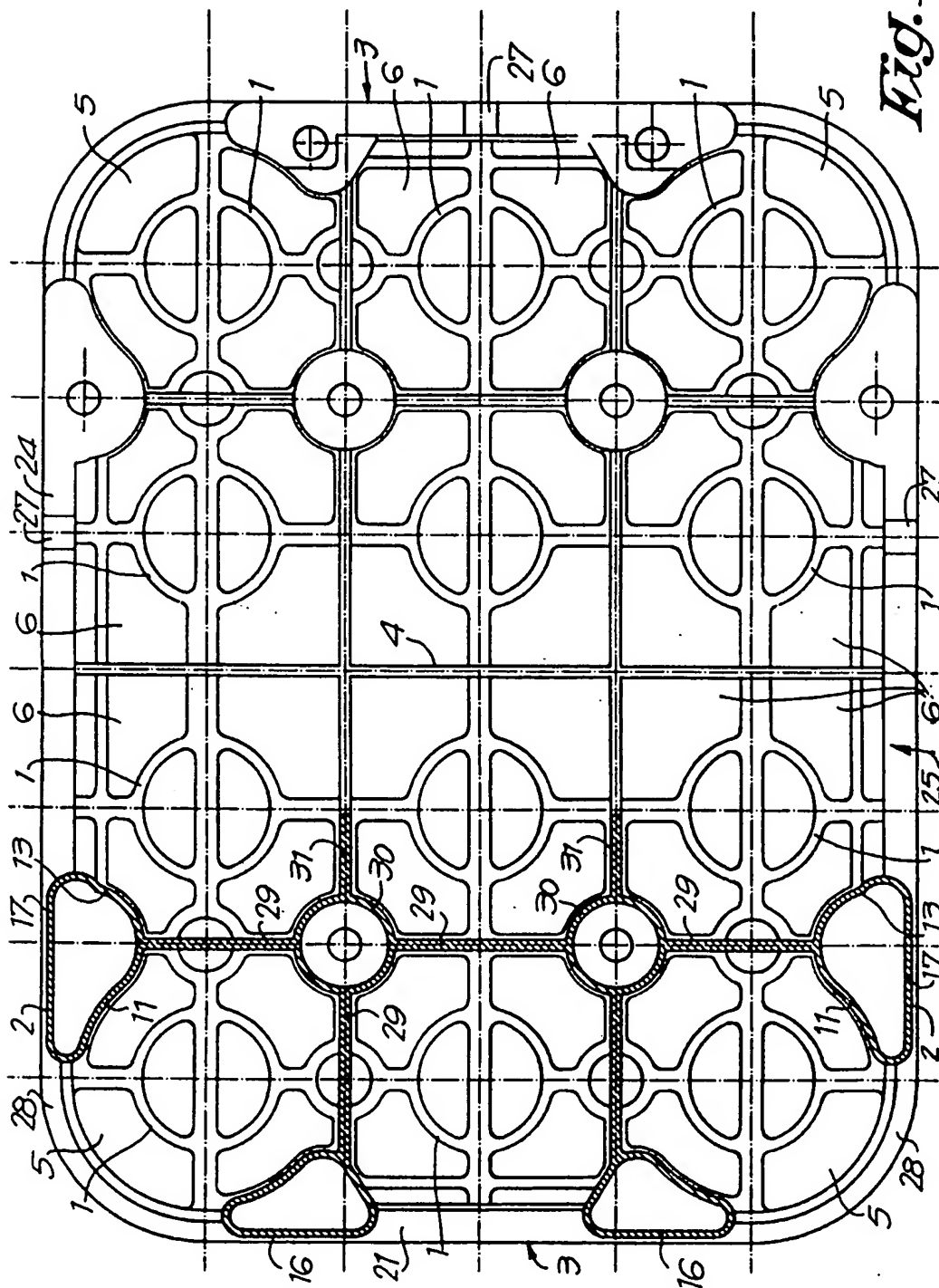


Fig. 10